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(54) **Title:** MRI BASED CHARACTERIZATION OF MICROVASCULAR OBSTRUCTION IN RESPONSE TO THERAPEUTIC HYPOTHERMIA FOLLOWING ACUTE MYOCARDIAL INFARCTION

(57) **Abstract:** Methods for reducing microvascular obstructions, reducing hemorrhagic microvascular obstructions and/or reducing ischemia-reperfusion injury in a subject in need thereof use therapeutic hypothermia and monitoring the outcome of the intervention with a non-invasive imaging standard. A method for reducing microvascular obstructions in a subject in need thereof comprising establishing therapeutic hypothermia by cooling blood prior to reperfusion and performing an angioplasty to re-establish perfusion to an ischemic area in the subject using the cooled blood so as to reduce microvascular obstruction, thereby reducing microvascular obstructions in a subject in need thereof. The subject is a myocardial infarction patient whose treatment is initiated at least 6 hours after the onset of symptoms of myocardial infarction. The method further comprises monitoring microvascular obstructions using magnetic resonance imaging during reperfusion and post reperfusion.

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61K 49/00 (2012.01) USPC - 424/9.1 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC(8)- A61K 49/00 (2012.01); USPC- 424/9.1 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC- 424/9.1, 1.11, 9.4, 9.3, 9.45; Patents and NPL (classification, keyword; search terms below) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWest (US Pat, PgPub, EPO, JPO), GoogleScholar (PL, NPL), FreePatentsOnline (US Pat, PgPub, EPO, JPO, WIPO, NPL); search terms: perfusion, reperfusion, microvascular, vascular, obstruction, myocardial, infarction, cool, cold, hypothermic, blood, reestablish, reintroduce, femoral, catheter, hemorrhage, hemorrhagic		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0167467 A1 (HARRISON et al.) 26 August 2004 (26.08.2004), para [0005], [0009], [0010], [0028], [0034], [0038], [0066], [0071], [0072], [0079]	1-5, 6/(1, 2), 7/(1, 2), 8/(1, 2), 9/(1, 2), 10, 11
Y	US 2007/0014764 A1 (LEVY et al.) 18 January 2007 (18.01.2007), para [0029], [0030], [0032], [0037], [0046], [0047], [0067], [0078], [0085]	2-5, 6/(2), 7/(2), 8/(2), 9/(2)
Y	HALE et al. "Mild Hypothermia as a Cardioprotective Approach for Acute Myocardial Infarction: Laboratory to Clinical Application." Journal of Cardiovascular Pharmacology and Therapeutics [online], Epub 13 December 2010 (13.12.2010) [Retrieved on 2012-07-07], Vol. 16, No. 2, pp. 131-139, Retrieved from the Internet: <URL: http://cpt.sagepub.com/content/16/2/131.short>, Abstract only	1, 2, 4, 6/(1, 2), 7/(1, 2), 8/(1, 2), 9/(1, 2), 10, 11
Y	US 2010/0168649 A1 (SCHWARTZ et al.) 01 July 2010 (01.07.2010), para [0017], [0019], [0048], [0078]	7/(1, 2), 10
P, Y	US 2011/0184384 A1 (DAVALIAN et al.) 28 July 2011 (28.07.2011), para [0008]-[0100]	1-11
Y	SELIMOGLU et al. "A practical and effective approach for the prevention of ischemia-reperfusion injury after acute myocardial infarction: pressure-regulated tepid blood reperfusion." Heart Surgery Forum [online], 2007 [Retrieved on 2012-07-07], Vol. 10, No. 4, pp. E309-E314, Retrieved from the Internet: <URL: http://www.ncbi.nlm.nih.gov/pubmed/17599881> Abstract only	1-11
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774